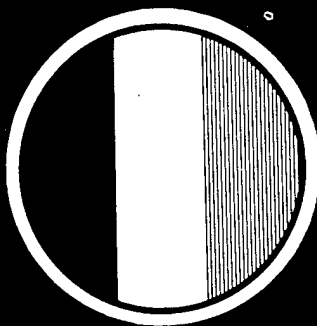


UNCLASSIFIED

UNITED STATES ARMY TRAINING AND DOCTRINE COMMAND

# TRADOC BULLETIN 9



- WEAPONS
- TACTICS
- TRAINING

INFANTRY  
FIGHTING  
POSITIONS

SEPTEMBER 1977

UNCLASSIFIED

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**\* ARMY TRAINING AND EVALUATION PROGRAM**

UNITED STATES ARMY  
TRAINING AND DOCTRINE COMMAND  
BULLETIN NO. 9

# INFANTRY FIGHTING POSITIONS

*"Don't stand up when the enemy's coming against you. Kneel down.  
Lie down. Hide behind a tree."*

ROGER'S RANGERS' STANDING ORDERS

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This TRADOC BULLETIN is intended to provide to commanders, and others concerned with military training, timely technical information on weapons, tactics, and training. It is not intended to supplant doctrinal publications, but to supplement material on "how to fight" with data derived from tests, recent intelligence, or other sources, which probe "why."

**TRAINERS' NOTE:** The format of this bulletin is designed to help trainers identify and extract needed information. Charts, illustrations, and other key data are unclassified, clearly marked and are boxed-in by a bold line.

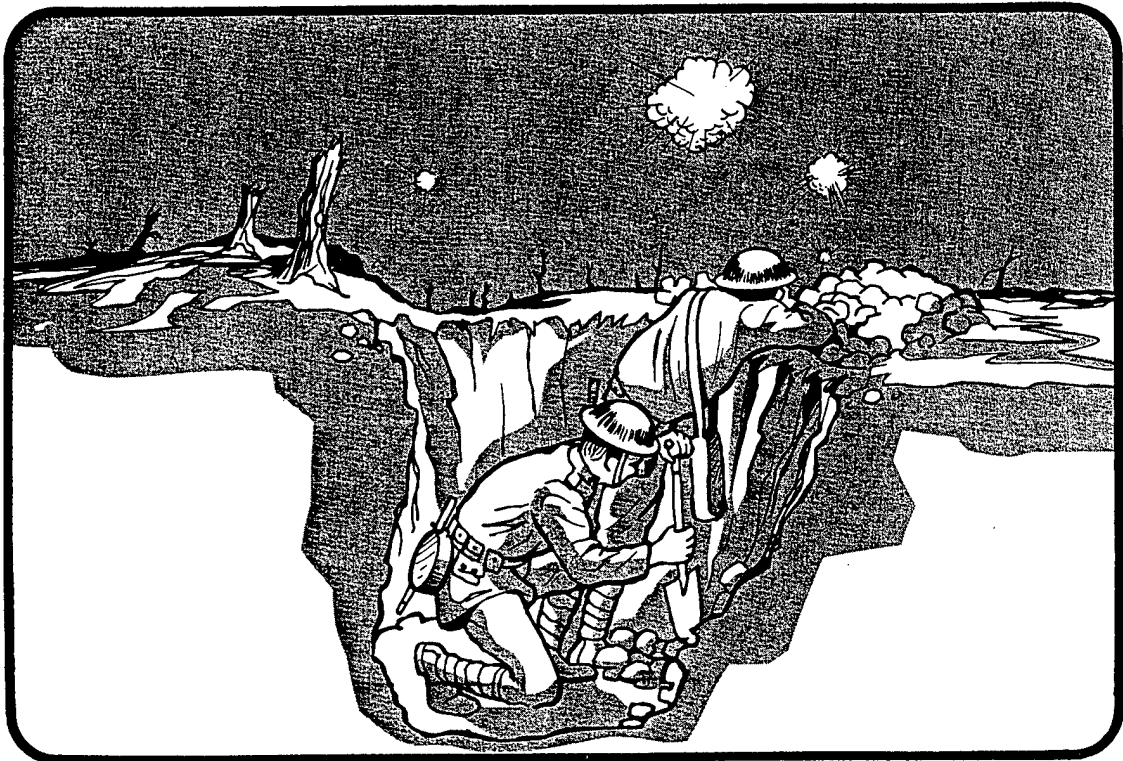
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US Army Training and Doctrine Command  
ATTN: ATCG-T (TEL: AUTOVON 680-2972/3153)  
Fort Monroe, Virginia 23651

## I THE INFANTRY FIGHTING POSITION

### OVERVIEW

To dig or not to dig has been a serious question ever since the time of our Civil War when the use of accurate rifled weapons became widespread. Since the American Civil War, there have been dramatic increases in both the volume and the accuracy of the fires being directed at front-line soldiers. In World War I, machineguns and artillery drove infantry underground into trenches. Even in World War II, a war of movement, digging "foxholes" became part of the skill of the expert infantryman on all fronts. And, although we know that our digging habits were not universally good in Viet Nam, we also know that the modern battlefield will be a brutal environment to the Army which neglects the preparation of good fighting positions.



## PURPOSE

The fighting position, *well sited and carefully constructed*, gives a distinct advantage to an infantry defender. The purpose of this bulletin is to describe what we know about locating and constructing positions to secure the maximum advantage for our soldiers, and *to convince you to train accordingly*.

## REQUIREMENTS

Logic alone provides us with the *general* requirements for any fighting position. Basically, a fighting position must give soldiers **a protected place from which to fight**. This is as true for an overwatch position chosen to be occupied for a few short minutes by troops on the move as it is for a position deliberately built to be occupied for several days.

**Protected** includes shelter from:

- The effects of direct enemy small arms fires and fragments from indirect fire weapons
- Observation by enemy tank and ATGM gunners, artillery observers, and aerial observers.

**A place from which to fight** must enable the soldier occupying it to:

- Observe and engage the enemy at long ranges. It must be properly positioned or sited
- Continue fighting and continue manning his weapon effectively, even as the enemy soldiers advance and fire.
- Be convinced that he can fight and win from the position he has built. It must be logically chosen, easy to learn how to construct, and confidence-inspiring.

Briefly stated...

### A FIGHTING POSITION MUST

**Protect against small arms fires**

**Protect against indirect fire fragments**

**Protect against aerial and ground observation**

**Protect against tank and ATGM fires**

**Provide for long-range observation and fires**

**Provide for protected fighting and mutual support even as the enemy advances**

**Provide confidence to fight and win**

This bulletin will expand on these requirements. It will tell you *why* the requirements are valid and *how* you and your soldiers can meet them.

## II

## WHY FRONTAL PROTECTION

The introduction outlined general requirements for fighting positions. Before we can begin to define the **ideal** fighting position, we should:

- Analyze the threat to our soldiers on the modern battlefield.
- Evaluate the results of field experimentation conducted by the Combat Developments Experimentation Command (CDEC) at Fort Hunter Liggett in California.

## THE THREAT

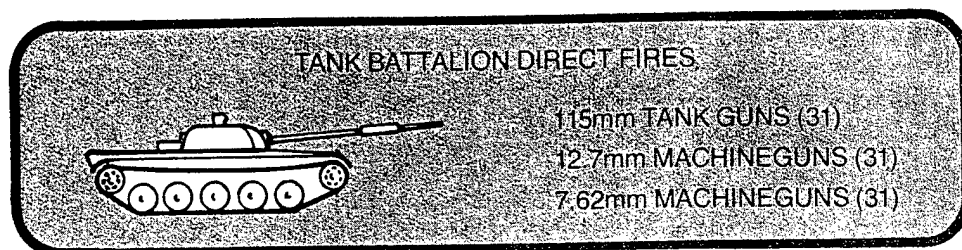
Any discussion of fighting positions on the modern battlefield must first take into account those things we want the position to protect us from — the tactics and equipment of our potential adversary. The numbers and lethality of modern weapons have increased to such a point that today we have a problem of unprecedented magnitude.

The new aspects of the problem spring from the numbers and capabilities of the weapons now organic to the Threat armies.

- There are large numbers of long-range, point-target weapons such as tank cannon and guided missiles. The telescopic sights used on these tanks and ATGM, together with long-range night sights, enable gunners to acquire, engage, and hit or suppress infantry positions at ranges in excess of 2,500 meters.
- Advancing Threat forces employ very heavy, direct-fire frontal suppression by tanks, artillery, infantry fighting vehicles, and by dismounted infantry.
- Threat forces also rely heavily on indirect suppression from artillery, mortars, and rockets.

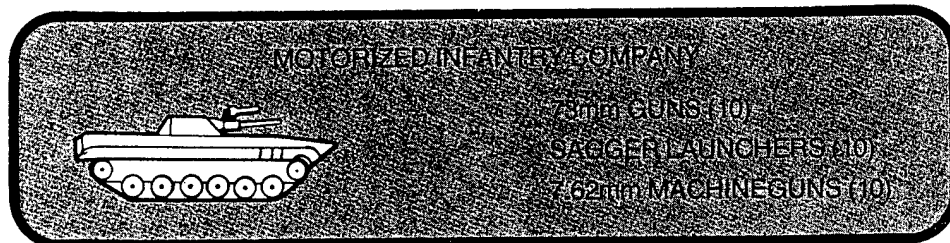
Let's be more precise:

Consider a Soviet breakthrough operation led by a tank battalion. Following deployment from the line of march on a front of 1,000 meters, the battalion would narrow its frontage to a width of 700 to 800 meters at the decisive point. This Threat unit would suppress with thirty-one tank guns of the 115mm size, thirty-one 12.7mm machineguns, and thirty-one coaxially mounted 7.62mm machineguns.

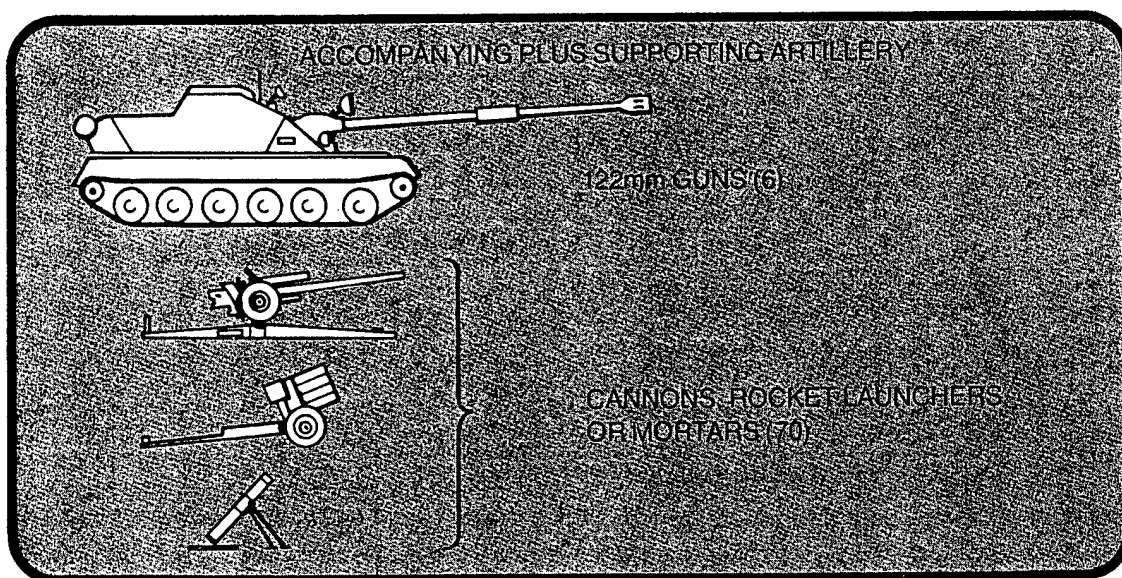


The tank battalion would normally be accompanied by a motorized infantry company equipped with ten 73mm guns, ten SAGGER launch rails, and ten 7.62mm machineguns.

These, too, would fire to the front for suppression.



*Accompanying* artillery would typically consist of six tubes of 122mm self-propelled guns which would be employed in either the direct or indirect fire role. *Supporting* artillery on the 700 to 800 meter front would be delivered by the massed fires of some 70 artillery pieces, multiple rocket launchers, or heavy mortars.



Briefly stated:

### THE PROBLEM IS

- Large numbers of accurate point-target weapons
- Improved detection with day and night sights
- Heavy, direct-fire, frontal suppression
- Indirect fire suppression from massive artillery, mortar, and rocket fires



The problem is impressive. But, as in the past, our infantrymen must do more than just protect themselves: **our infantry must fight as well.** We may well find ourselves defending that 1,000-meter stretch of frontage with a force outnumbered by odds of 3:1 or even greater. The mission could require that we defend in place, that we hold the terrain we occupy. Under these circumstances, *each of our soldiers may have to kill or disable three or more enemy soldiers.* Our soldiers must be able to **fight**, and **fight well** from the positions they are in when the enemy arrives. *If their positions don't protect them, they won't survive long enough to fight.*

How to solve this problem has been a high-priority project during recent years. As a part of the search for solutions, CDEC recently completed a series of extensive, detailed field experiments, one of which was called PARFOX VII. The experiments were conducted to help determine the configuration of the fighting position best suited to the modern battlefield.

### PARFOX VII FIELD EXPERIMENTATION

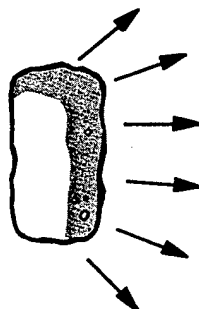
Remember our requirements:

#### A FIGHTING POSITION MUST

- ☆ Protect against small arms fires
- ☆ Protect against indirect fire fragments
  - Protect against aerial and ground observation
  - Protect against tank and ATGM fires
  - Provide for long-range observation and fires
- ☆ Provide for protected fighting and mutual support even as the enemy advances
- ☆ Provide confidence to fight and win

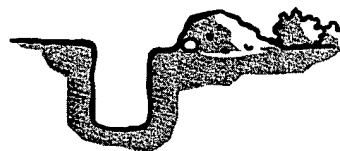
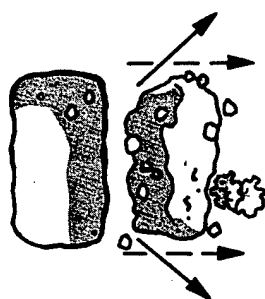
Those requirements marked by the stars can be answered, in theory at least, with either natural or man-made frontal protection. In the battlefield environment just described, it seems logical that frontal protection is a desirable feature for all fighting positions. This has not always been universally accepted. To determine the desirability of this protection and to determine the best configuration of the protection, CDEC conducted field experimentation using live soldiers attacking and defending three distinct configurations of fighting position:

- Open Foxhole
- Parapet Foxhole
- Split Parapet Foxhole

**OPEN FOXHOLE**

PERMITS UNRESTRICTED 360° OBSERVATION  
AND FIRES

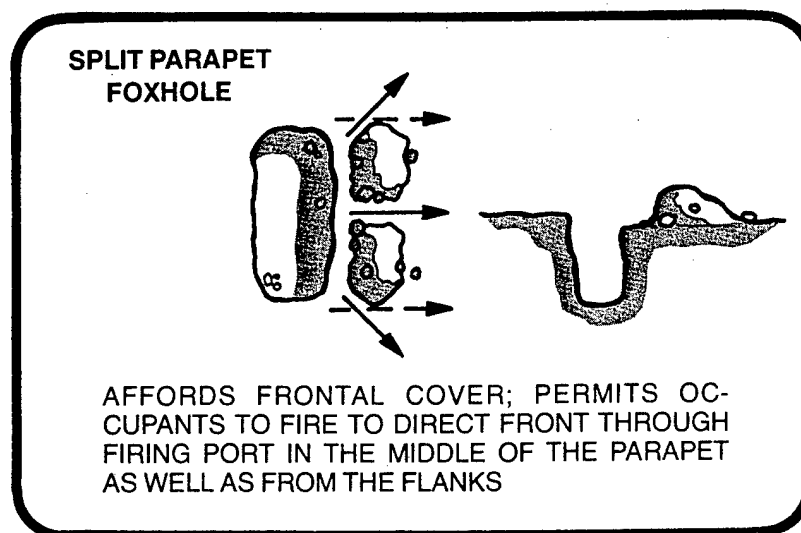
The traditional or **open foxhole**, a two-man position dug level with the ground, was used as a basis for comparing the other two types of foxholes. The spoil from digging was not used to protect the occupants, but was concealed away from the position. (The schematics of this and the other two foxholes are not to scale. Grenade sumps and overhead cover are not shown.)

**PARAPET FOXHOLE**

AFFORDS FRONTAL COVER; PERMITS OB-  
SERVATION AND FIRES TO FRONT WITH DIFFI-  
CULTY

The **parapet foxhole** was a two-man position with the frontal protection, usually provided by spoil, packed on the enemy side of the hole. The parapet foxhole was not designed to permit firing to the front, and thus, engagement to the front around the edges of the parapet was difficult. It was designed to provide maximum frontal protection and to force defenders to give mutual support by always engaging attackers at an angle.

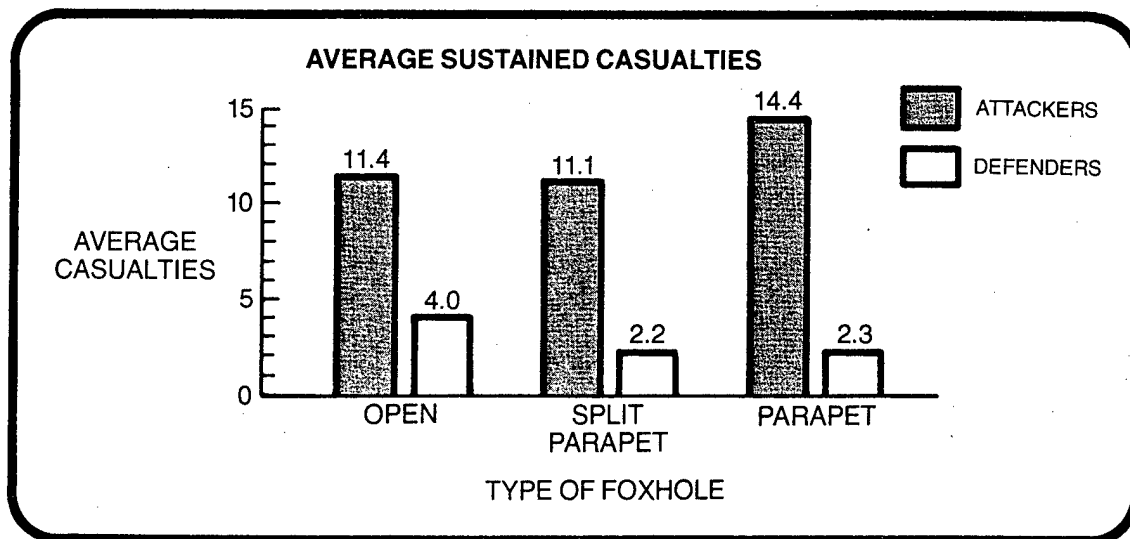
But the soldiers participating in the field experiment did not like to engage only at an angle. Consequently, they frequently would lean around the side of the parapet so that they could observe and engage straight ahead. Not only was this uncomfortable, but it caused them to sacrifice much of the protection of the hole. They could assume a good firing posture only with difficulty. Only by leaning out, however, did they satisfy their very strong urge to see the front and this was what most preferred to do.



The **split parapet foxhole** used in the test is similar to the parapet foxhole, but with a firing port in the middle of the parapet which allows both observation and firing to the direct front. This design was tested in an effort to overcome the troops' uneasiness about not being able to see and shoot to the front.

### RESULTS OF THE EXPERIMENTS

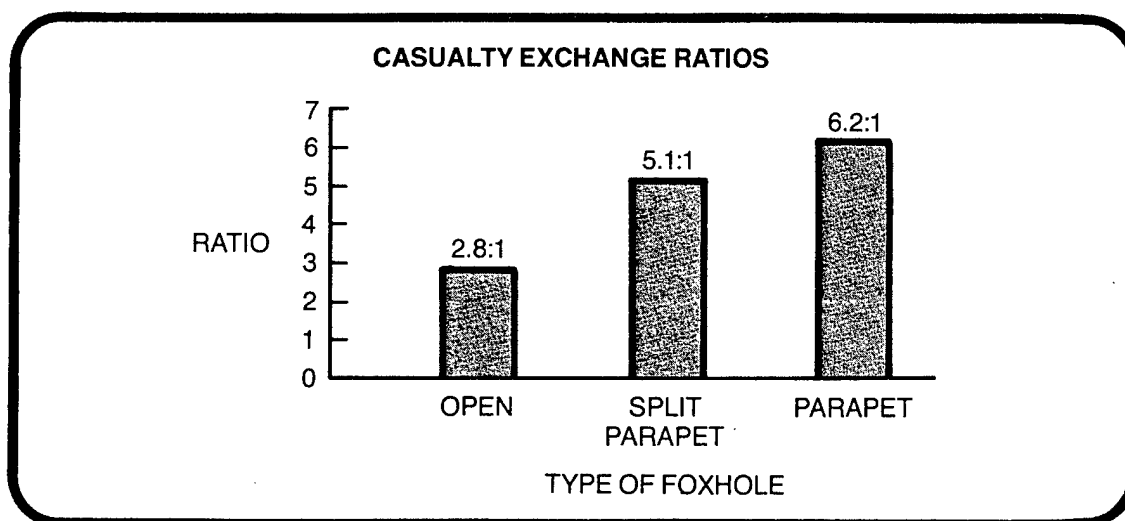
The experimental attacks were conducted against the three types of positions which were all camouflaged to an equivalent degree. A platoon of 23 troops attacked a squad of eight defenders. A total of 72 fully instrumented trial attacks were conducted. (Of these, 18 were at night, but these results were inconclusive. From the data gathered at night it was not possible to draw conclusions, that is, to say that frontal protection at night is either desirable or undesirable). From 54 closely monitored *daylight* attacks, statistically conclusive data were obtained. One of the most important ways to measure the effectiveness of the three types of fighting position is to look at the *casualties* sustained by the attackers and defenders.



This shows that fewer defenders are killed when attacks are launched against positions with frontal protection.

#### CASUALTY EXCHANGE RATIOS

Another interesting way to consider fighting position effectiveness is to compare the *casualty exchange ratios* that occurred during the trials. This ratio is defined as attacker's casualties divided by defender's casualties. Applying the averages from above and computing, these ratios are as follows:

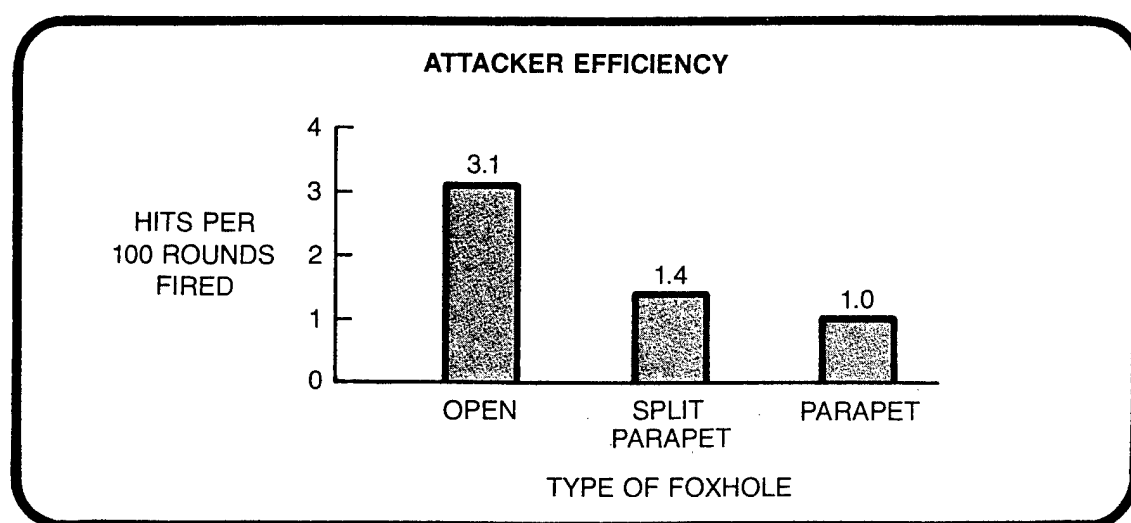


... The ratio was found to be more than *twice* as favorable to a soldier fighting from behind a parapet!

The difference between the ratios for split parapet and full parapet seems to be explained by several factors. Obviously, an interruption in the protection can allow more stray rounds to get through and score hits. But also, as defenders moved to observe first through the split, then to the flank, they moved laterally. Lateral motion is known to be the easiest kind to observe. This was again proven during PARFOX VII.

### VULNERABILITY

It was also possible to use the test data to measure the efficiency of both defensive and offensive shooters in terms of numbers of hits scored per hundred rounds fired. The illustration below displays the potential efficiency of the attacking shooter.

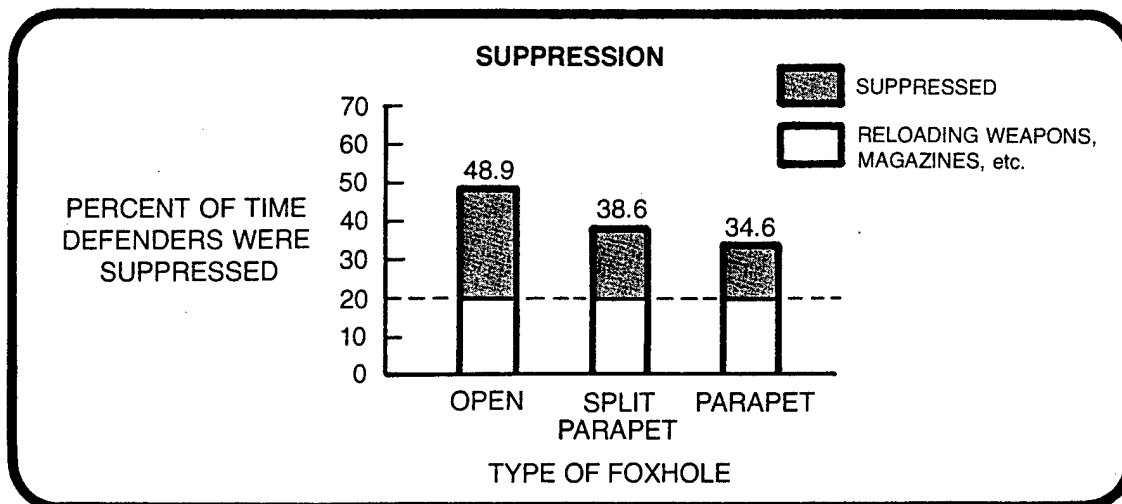


Although defenders were found to be *as efficient* in parapet positions as they were in open positions, that is, they caused as many casualties per hundred rounds fired from all three types of position, attackers scored over *twice* the hits on defenders in open holes as compared with defenders in *split parapet* holes. Comparing open positions with *parapet* positions, attackers were over *three* times as effective against the old open position.

The defender in a position with frontal protection is *significantly* less vulnerable to enemy small arms fires.

### SUPPRESSION

Still another measure of the relative effectiveness of the types of position was in the amount of time the defenders spent suppressed during the course of the parapet foxhole test trials. In the experiment, a soldier was considered suppressed any time he was in a posture that would not enable him to fire on the enemy to his front or flanks.



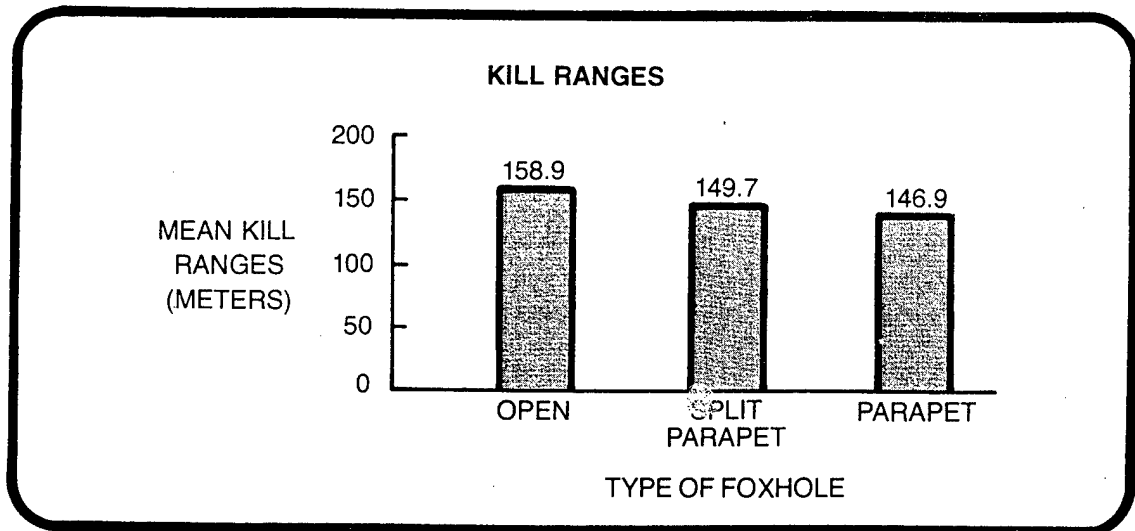
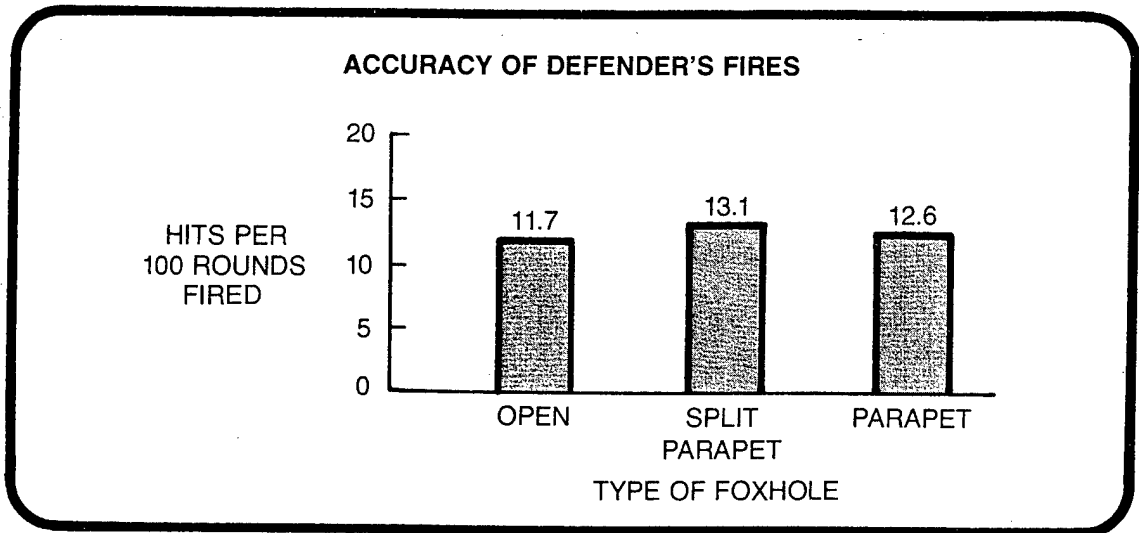
A rapid consideration of these figures tells us that defenders in parapet foxholes *can fire 28 percent more of the time* than defenders in open holes, which is certainly significant. But consider that defenders in **all** types of holes will necessarily spend a certain fixed amount of time ducking down, to load their weapons, to reload magazines, or because their leaders have instructed them to stay down until told to open fire. Call this fixed amount 20 percent of the time. Subtract the 20 percent from the figures that correspond to all three types of foxhole and the proportion is greatly magnified. Occupants of the open foxhole are **twice** as likely to be suppressed as those in the parapet foxhole. These measures of the susceptibility to suppression have obviously impacted the casualty exchange ratios discussed earlier.

*Once the shooting starts, troops without frontal protection perceive themselves to be in greater danger than those in a protected position. And, in fact, they are in greater danger.*

**The test results discussed thus far prove conclusively that fighting positions with frontal cover are superior to positions without frontal protection.**

#### DEFENDER EFFECTIVENESS

Our instincts tell us, though, that the defender must sacrifice something when he prepares a position with all that frontal protection. We tend to think that the attacker can probably get closer before he is engaged by a defender. However, test results show that with the three kinds of position, *there is no significant difference* in the accuracy of defender's fires, and in the average distance from the FEBA at which attackers were "killed."

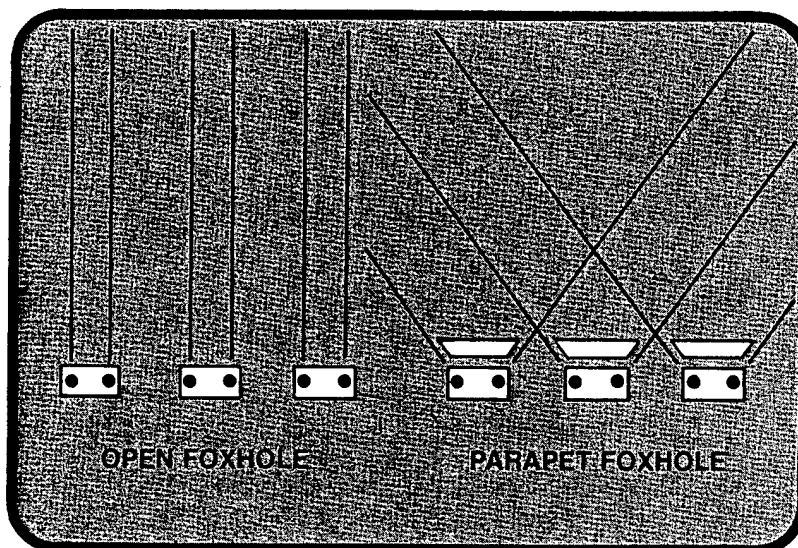


These two graphs show that the experimentation results did not support the notion that frontal protection leads to degradation either of the defender's fires, or of his ability to stop the enemy at acceptable distances. As we stated earlier, there was no significant difference in the average number of hits scored per hundred rounds fired by defenders from the three types of hole.

The mean kill range is an average distance from the FEBA at which attackers were successfully engaged by defenders. Some attackers got closer, of course, and some were stopped at greater ranges. In any event, the difference of approximately 12 meters at a range of about 150 meters is not felt to be operationally significant.

The explanation for this is found in the comparison of angles of engagement, or the angle of the firer's rifle when he shot at the enemy. In *theory*, a defender in an open foxhole can fire

straight to his front, or on an angle of zero degrees. On the other hand, a well-constructed parapet foxhole should restrict the defender's angle to something greater than 30 degrees.



In *practice*, though, the attacker did not come at the FEBA in an evenly distributed formation. On the contrary, the attacker came at the FEBA along what he felt was the avenue of approach which offered the highest likelihood of success. Consequently, the attack tended to be concentrated in one part of the front, and defenders fired in the appropriate direction. The *average* engagement angle of defenders in open foxholes was more than 20 degrees; the average angle for those in parapet foxholes was only 12 degrees greater. This explains why there was little difference in engagement ranges and in the ranges at which the attackers were stopped by defenders in the two types of hole.

### TEST CONCLUSIONS

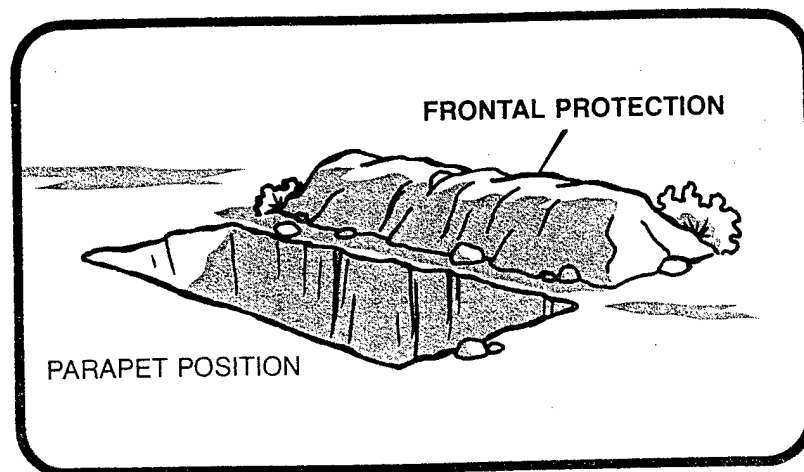
PARFOX VII was a realistic, highly instrumented, and extensively documented series of field experiments that showed conclusively that a position with frontal protection will give our soldiers a higher likelihood of surviving to fight and win on the modern battlefield. Specifically, the test demonstrated:

- The ratio of attackers to defenders killed is more than twice as favorable to a soldier fighting from behind frontal protection
- Defenders are three times as vulnerable in open foxholes as they are in protected holes
- Troops in parapet positions are far less susceptible to suppressive effects of enemy fires than they are in open foxholes
- Defender's fires are just as accurate from behind frontal protection as from open positions
- There is no appreciable difference in average kill ranges by defenders.

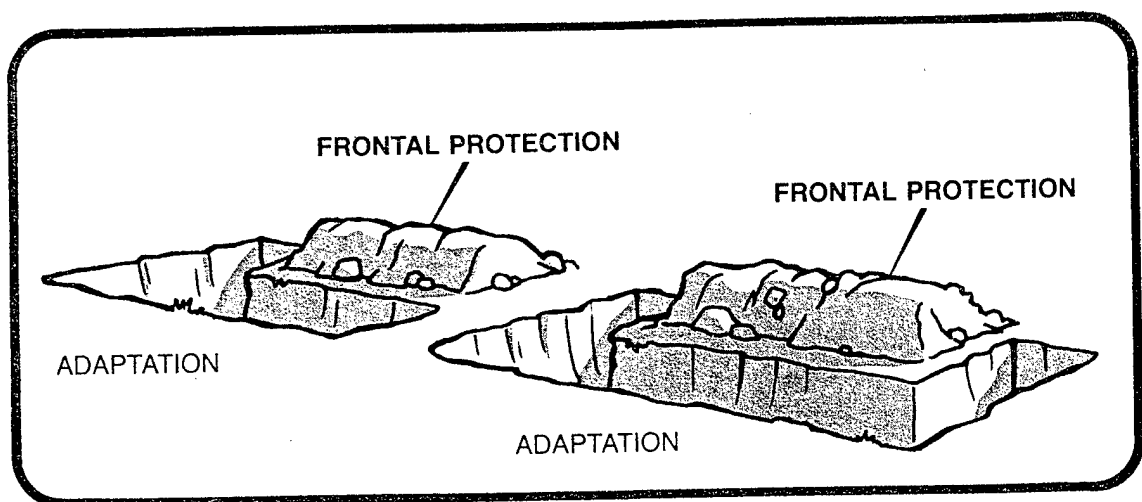


### THE NEXT STEP

Of the three positions tested, the parapet position is the one which *best* meets all the requirements.



There are, however, many places where the precisely configured parapet position used in the test will not allow troops to observe and cover all the terrain to their front. In these cases, a modification can be made to the position. The hole can be extended around one or both edges of the frontal protection.



These modified positions incorporate all the fundamental advantages of the tested parapet position. They should also lead to greater troop acceptance and confidence.

### III HOW TO SITE AND PREPARE THE POSITION

Analysis of the Threat, as well as the results of CDEC field experimentation, fully justifies the requirement for frontal protection in the fighting position. The *why* has been demonstrated. *How* to achieve good protection is a function of more than just hard work with entrenching tools. It is achieved by:

- Careful siting
- Most effective configuration of the position

#### SITING

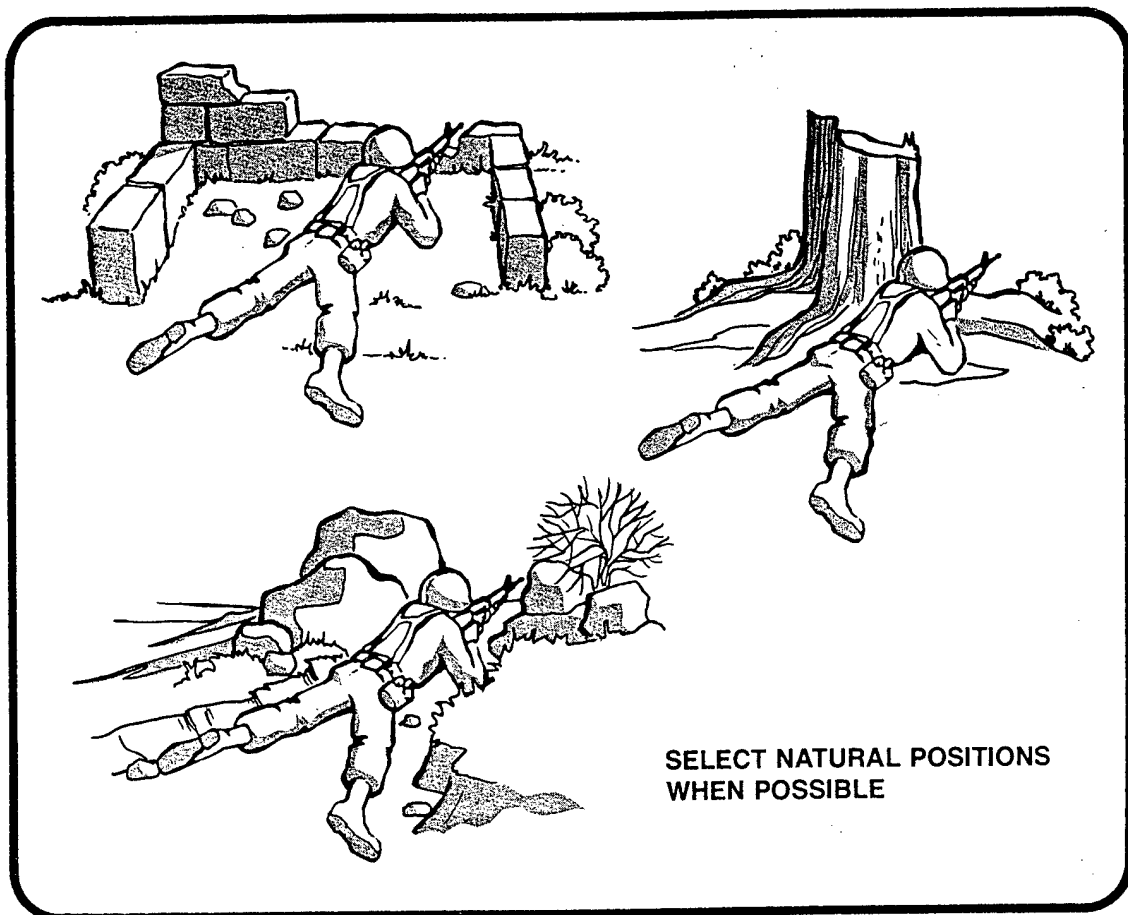
The four fundamentals of combat are: **COVER**, **CONCEALMENT**, **SUPPRESSION**, and **TEAMWORK**. The selection of the exact location or site of each position to be occupied by a squad must take all four of these fundamentals into account. Obviously, the equal leader must first make a *complete, detailed* reconnaissance of the area to be defended so he can select the locations that will best help him accomplish his mission, maximize the four fundamentals, and meet the fighting position requirements that were discussed in Chapter II.

**COVER** Physical protection from weapon effects, will ideally reduce the likelihood of casualties from either direct or indirect fires. Often nature provides the desired frontal cover. However, this cover should be configured to permit engagement at the maximum effective range of the weapon, as well as continued engagement to the flanks once suppressive direct fires begin to fall on the position from the front. The well-selected site facilitates the preparation of cover against indirect fires as well.

**CONCEALMENT** Concealment sufficient to prevent the enemy from pinpointing the location of the position is also crucial. If this sort of concealment is not available, then camouflage must be used; however, natural concealment is preferable to manmade, since:

- It is immediately available
- It is more difficult to pinpoint
- It need not be replaced.

A well-selected natural position, then is most desirable. It can be easier to improve for protection, and it can be more *effectively hidden from enemy fires*.

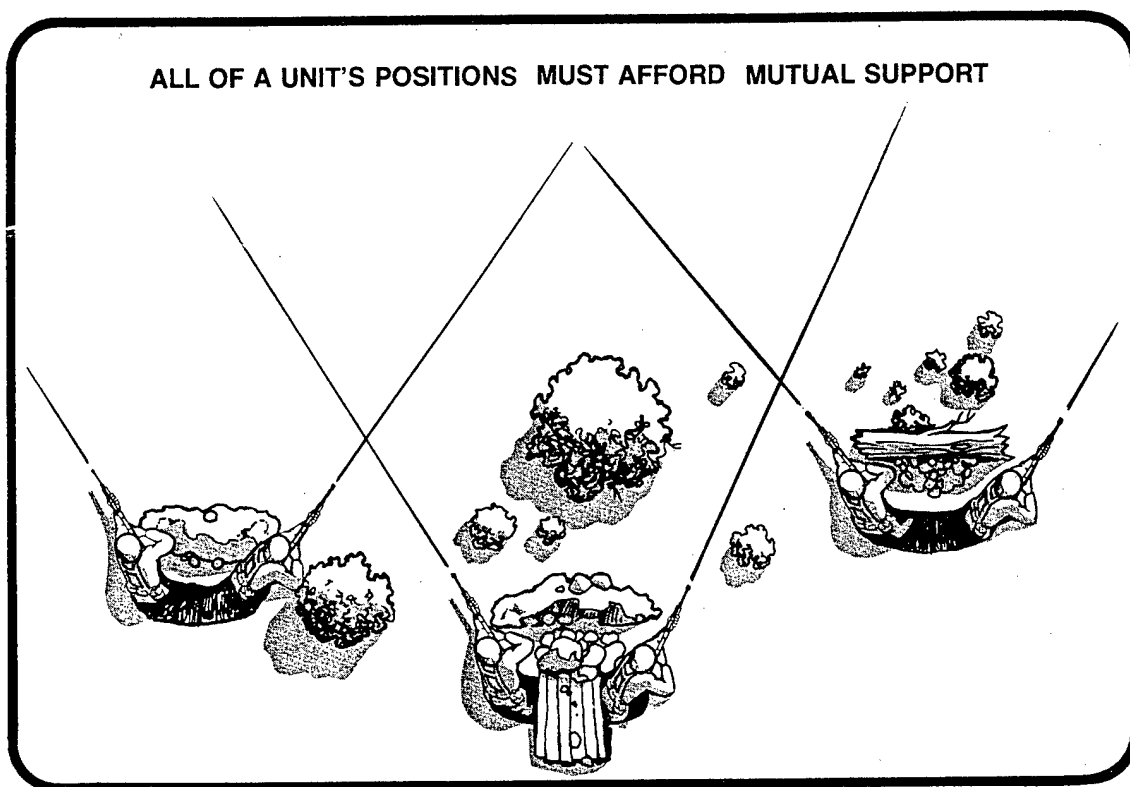


**SELECT NATURAL POSITIONS  
WHEN POSSIBLE**

**SUPPRESSION** The fighting position must have fields of fire which allow the occupant to engage the enemy at the *maximum effective range of his weapon* to the front, and to the flanks in support of other squad positions to the left and right. Long-range fires suppress, break up attack formations, and disrupt enemy control and cohesion. Close-in fires deliver the most lethal small-arms fires on the enemy since they engage him from an unexpected angle at shorter range. In the main, a location on the ground either affords these fields of fire or it doesn't, and thus the *original choice of site is crucial*.

**TEAMWORK (MUTUAL SUPPORT)** We have discussed the fundamentals of **COVER**, **CONCEALMENT** and **SUPPRESSION**, but **TEAMWORK** must also enter into the selection of the site of a fighting position. Thoughtful attention *must* be paid to the overall

defensive fire plan. Ultimately, the fighting positions will be defended not only by riflemen, but by the concerted action of the combined arms. Basic, though, to the **selection** of a site is the **TEAMWORK** of the fires of all squad members.



We have discussed the theoretical considerations of siting; let's consider the application of the principles.

On the following fold-out page, we see a ridge on which a squad leader has the mission to emplace his reinforced squad. (The artist has removed the vegetation in the foreground so that you can better appreciate the enemy avenues of approach.) The squad leader walks the military crest of the ridge and selects positions that will maximize fields of fire, mutual support, and natural protection. The locations that he feels best incorporate all of these features are shown by the arrows numbered 1 through 6.

Position 1 takes advantage of the concealment and the limited protection of the trees. This position would be tied in with a unit on its right as well as with the next position, number two.

Position 2 is located at the head of the gully so that this avenue of dismounted approach is fully covered with fires.

Position 3 is sited so that it takes advantage of the existing cover of the shoulder of the road.

Position 4 is behind a rock to take advantage of that natural cover and concealment. Because it is centrally located, the squad leader might select this for his position.

Position 5 is behind an existing pile of rubble.

Position 6 is sited to take advantage of the cover and concealment of the tree and to dominate the tank approach to the left of the squad sector. A Dragon might be placed here.

The squad leader selected the positions so that they would support the accomplishment of his squad defensive mission. He sited them to *maximize* the four fundamentals of **COVER, CONCEALMENT, SUPPRESSION, and TEAMWORK.**

The positions were also sited to facilitate their improvement. Where possible, *the sites took advantage of cover and concealment provided by natural features.*

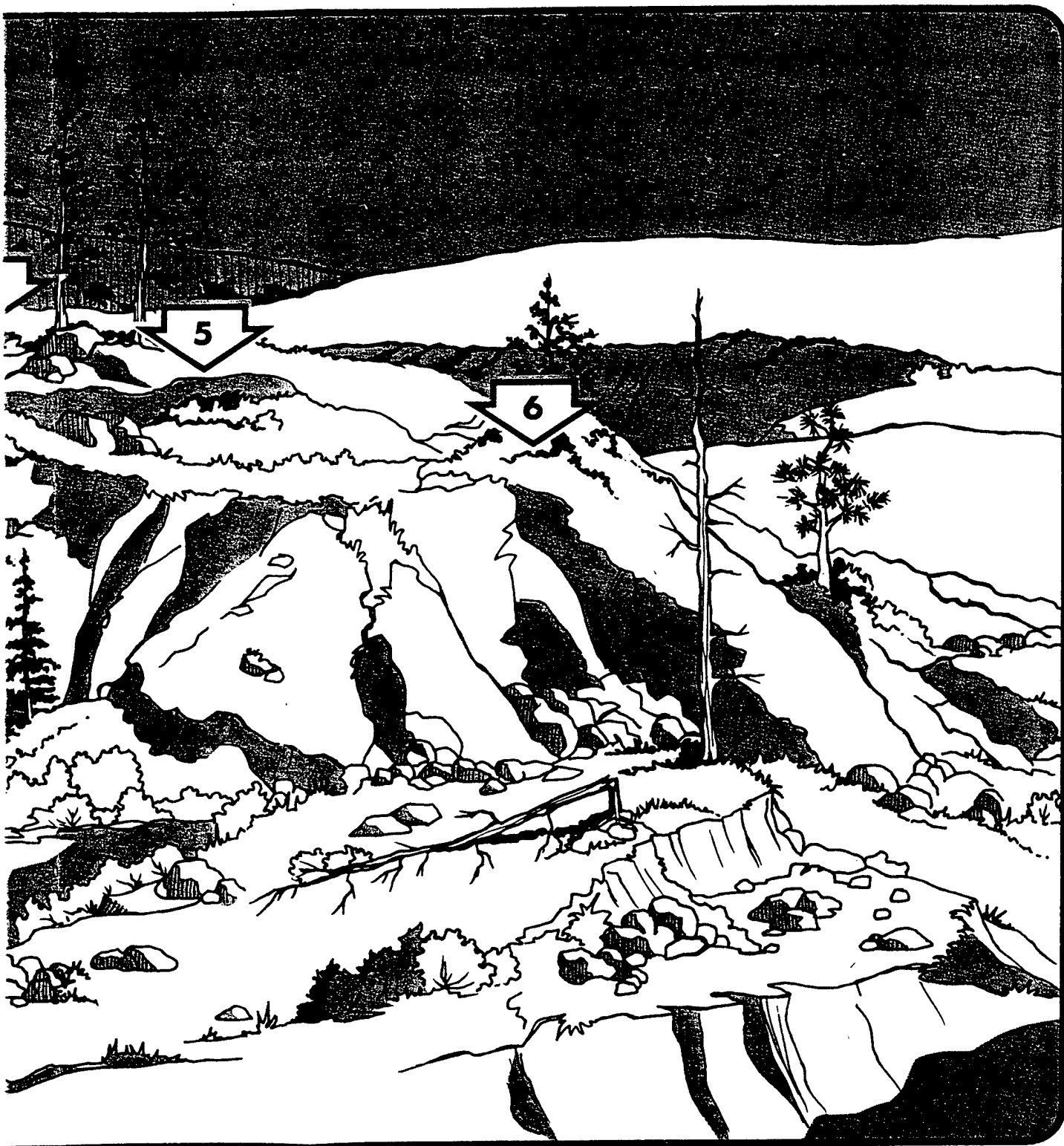
*The exact configuration of each position will greatly depend upon the lay of the land in the precise site.*



19 Caterfold



①



2

D



## **MOST EFFECTIVE CONFIGURATION OF THE POSITION**

Once the squad leader has thoroughly reconnoitered his sector and selected his positions based on all of the considerations already discussed, he emplaces his troops and *carefully* describes to them the role each is to play in the defense. The description *must include* the general shape of their overall position, its orientation, the requirements for overhead cover, and sectors of fire. The soldiers then prepare the position according to a specific set of work priorities. The following is a *suggested* list of priorities:

### **PRIORITIES OF WORK**

1. Be prepared to fight at any time
2. Emplace sector stakes to support the squad leader's plan
3. Partially clear fields of fire and begin digging
4. Dig the position using spoil to supplement natural frontal protection. Construct rear and side protection as necessary
5. Construct overhead cover
6. Complete camouflage and clearing fields of fire
7. Continue to improve the position

Remember, of course, that *all work performed* by squad members, whatever the assigned priorities, *must enable the position to fulfill all the requirements.*

### **A FIGHTING POSITION MUST**

- Protect against small arms fires
- Protect against indirect fire fragments
- Protect against aerial and ground observation
- Protect against tank and ATGM fires
- Provide for long-range observation and fires
- Provide for protected fighting and mutual support even as the enemy advances
- Provide confidence to fight and win

Let's discuss each of the priorities in some detail.

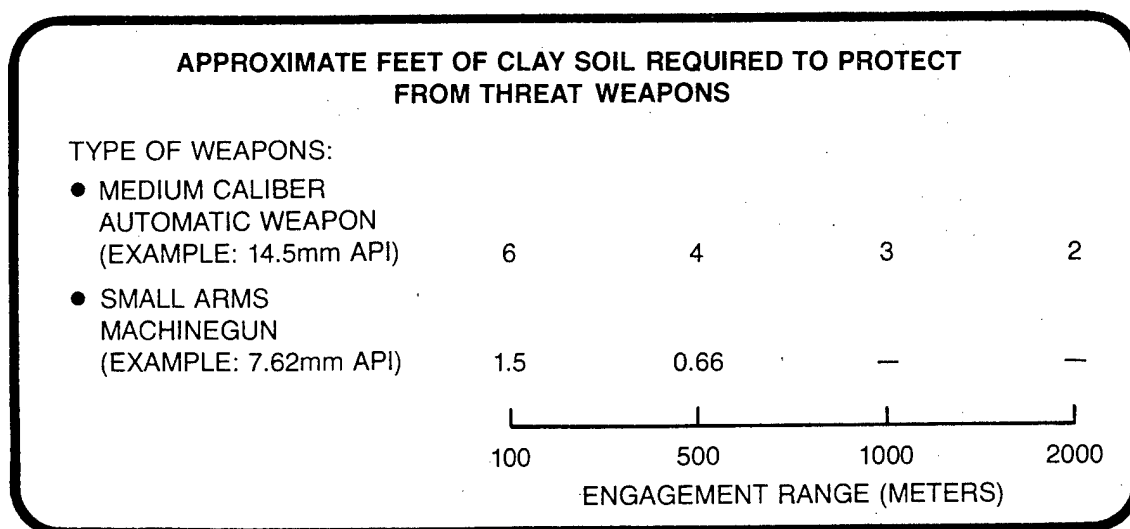
**1. Be prepared to fight at any time** The best position in the world will do no good if the enemy is able to approach it undetected and unopposed. Leaders must post security as soon as the unit position is occupied, and security must be maintained throughout the stay. *Prepared to fight* also means that the position must be concealed and camouflaged throughout the time that the work is being performed.

**2. Emplace sector stakes to support the squad leader's plan** The sectors of fire for each position will include both the longer ranges to the front of the position, and the fires to the flanks that will surprise the enemy *and* support neighboring positions. Assigned sectors should allow for a great deal of latitude during periods of reduced visibility, and permit one occupant to cover the entire sector of the position while the other sleeps. The stakes should be placed so as to define sectors of fire. Limiting stakes are placed to prevent accidental firing into adjacent positions, even at night.

**3. Partially clear fields of fire and begin digging** About the only measure to be taken to enhance fields of fire is the *intelligent*, selective clearing of vegetation and other obstacles that limit observation and fires from the position. Too much clearing will, of course, strip away natural concealment and make the position vulnerable to long-range detection, engagement, and destruction. The area must look *completely* natural throughout the construction process. Excess spoil must be disposed of as it is produced. The shape and orientation of the hole must allow full coverage of the assigned sectors of fire.

**4. Dig the position using spoil to supplement natural frontal protection. Construct rear and side protection as necessary** It is essential not only that the troops be below ground level, but that they are *protected when they rise up to fire*.

Shown below are penetrating capabilities of some types of weapons we might expect to see placing frontal suppressive fires against our fighting positions:



It should be noted that wet, packed sandbags afford *three* times as much protection as the soil shown in this chart. For example, a 14.5mm machinegun firing armor-piercing incendiary ammunition from 100 meters could penetrate only *two feet* of sandbags rather than the six feet shown for clay soil.

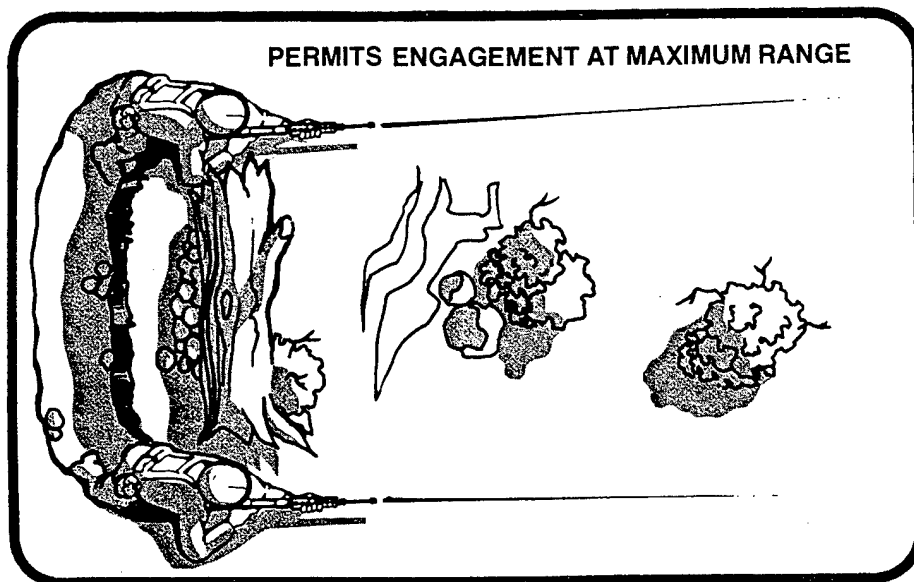
A dirt parapet will also protect against fragments from indirect fire weapons. However, hypervelocity tank ammunition or chemical energy (HEAT) shaped charge ammunition will penetrate far greater thicknesses of dirt. The inescapable conclusion here is that *we should not emplace our infantry on the front slope of an open hillside astride an ideal armor approach.*

### PERFECT, TOTAL CONCEALMENT IS OUR CHIEF PROTECTION AGAINST LARGE CALIBER, DIRECT-FIRE WEAPONS.

The hole itself should be as small as possible for best protection against air bursts, but it should be large enough to accommodate two soldiers wearing full combat gear. It should extend beyond the edges of the frontal protection as far as necessary to accommodate the sectors of fire discussed above. The extension may be straight or it may curve around the frontal protection.

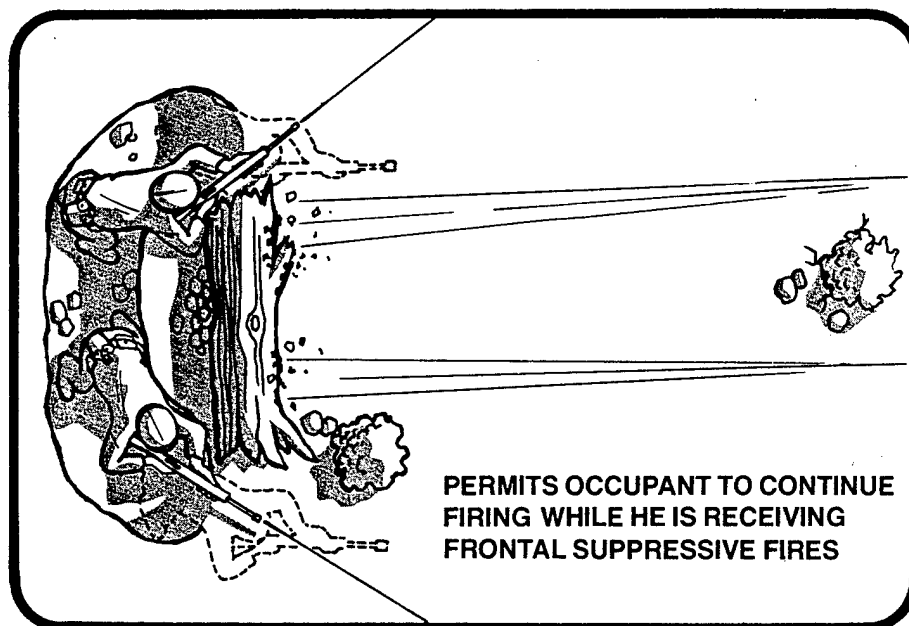
At this juncture it is appropriate to discuss the relationship between the hole, the frontal protection, and the conduct of the defense.

As stated earlier, both the position and the frontal cover must be configured so that they permit the occupants to engage the enemy at the maximum range of their weapons. As the



enemy comes within assault range, however, we must expect that direct suppressive fires will beat effectively all across the front of the position. Our soldiers should then pull back behind their cover and shift their fires to flanking attacks on the enemy assaulting adjacent positions. In this posture, defenders are protected from frontal fires and are able to shoot

from a direction that will surprise and destroy the enemy most effectively. The basic principle here is to keep *cover* between a soldier's head and shoulders, and the enemy assaulting to his direct front.

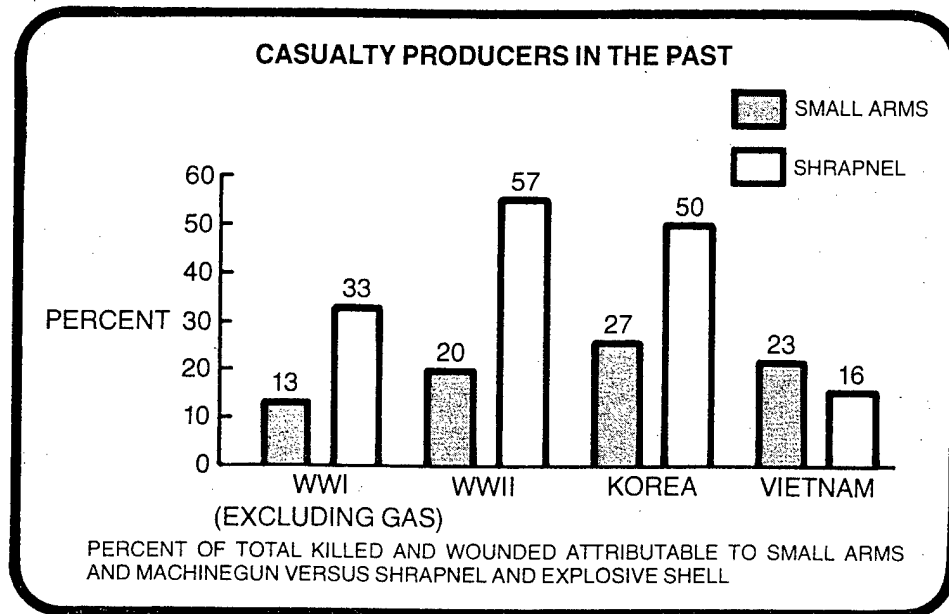


In addition to protection to the front of the hole, time may permit the improvement or creation of additional cover to the sides and rear of the position. In some cases, this will enhance concealment by preventing the skylining of a defender's head. Well-concealed side and rear protection will improve survivability of the occupants.

The extension(s) of the hole may be dug downwards, and be made into firing ports, a technique which is particularly effective in steep terrain.



**5. Construct overhead cover** *Indirect fires* usually cause the most casualties. The first war to be documented with sufficient precision to make a quantitative comparison was World War I. Since that time, *indirect fires have inflicted the most American casualties* in all U.S. wars except the Viet Nam conflict, where the enemy did not usually have much artillery at his disposal.



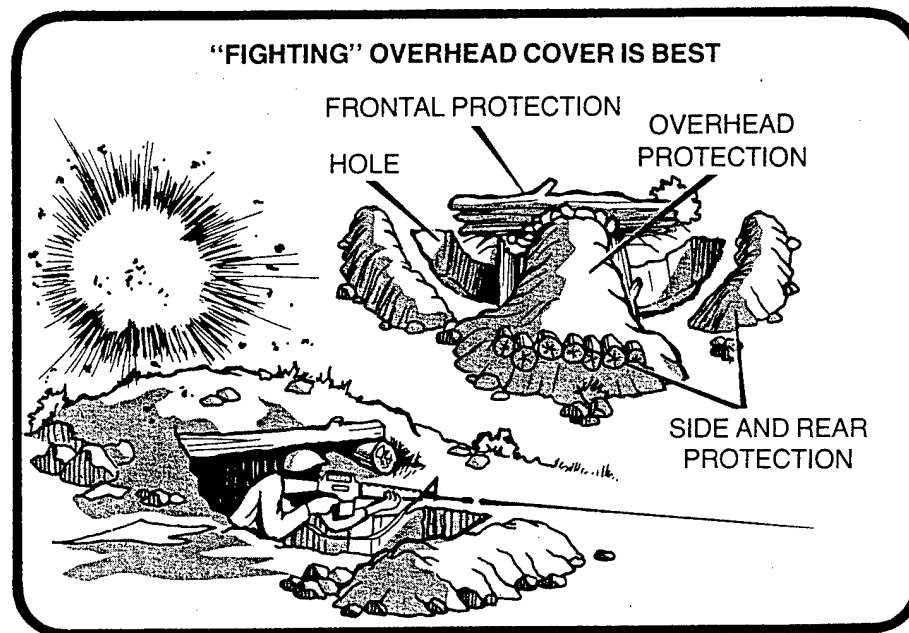
We certainly do not anticipate the next adversary to be as lightly equipped as the one in Viet Nam. As we saw in Chapter II, our potential adversary has large quantities of artillery. Overhead cover, with its protection from fragments, will give a significant reduction in casualties.

Consider the following example (data from a computer simulation). A platoon of 33 men is spread throughout an area 250 by 50 meters. An artillery battery firing 30 rounds at the area will probably cause the following casualties under the conditions shown:

EXPECTED CASUALTIES TO 33 TROOPS FROM 30 ROUNDS OF MEDIUM ARTILLERY FIRE			
FUZE:		PD	VT
TROOP POSTURE	STANDING	7	9
	PRONE	3	7
	DUG IN WITH OVERHEAD COVER	0	0

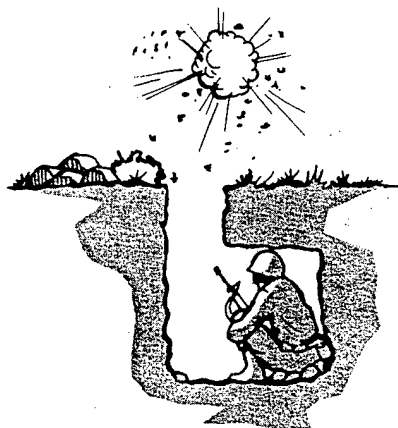
The protection afforded by overhead cover is dramatic. The configuration of the cover needs closer examination.

The ideal form of overhead cover would permit the defenders to continue fighting while they are being subjected to indirect fires.

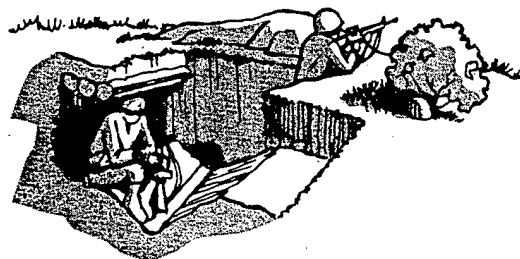


This ideal may not always be feasible. When it is obvious that it is impossible to conceal this sort of cover, that such "fighting" overhead cover will invite long-range tank or guided missile fires, it is then wiser to dig overhead cover to the rear or flanks of the hole.

**ANOTHER WAY, TO THE REAR**



**YET ANOTHER WAY, TO THE FLANKS**



Dug below ground level and suitable only to hide in, this sort of overhead cover is easier to conceal from enemy detection. In the end, the leader on the ground will have to make the difficult determination of which type of overhead cover is best in a given situation.

**6. Complete camouflage and clearing fields of fire** Camouflage, of course, requires constant attention and it must be continuous. Remember the logical constraints on clearing fields of fire.

**7. Continue to improve the position** This could eventually include the digging of communication trenches and of alternate, supplementary, and dummy positions. An infinite amount of work can be done to improve the defensive capability of a unit.



Now that we have expanded on the sort of work that soldiers do to improve and properly configure their positions, let's go back to our ridge and see, on the facing foldout, how the principles might be applied to the ground.

**Position 1** had only the two trees for frontal protection, so the spoil was used to fill in between the trees. It was camouflaged at all times.

**Position 2** was emplaced at the head of the ravine, so firing ports were actually dug down into the bank to permit engagement down the steep gully.

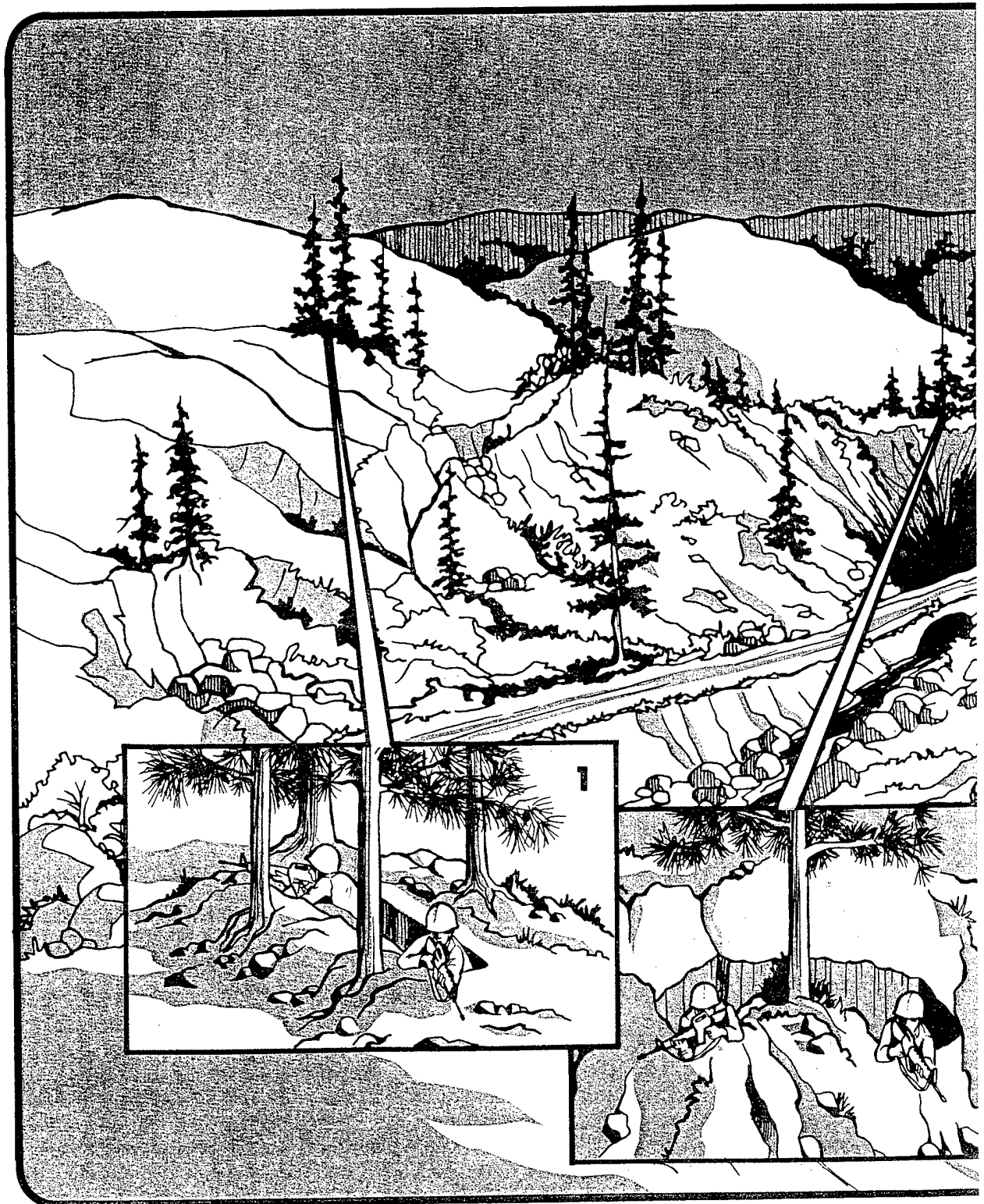
**Position 3** was dug in the drainage ditch along the dirt road and has ports dug down into the shoulder of the trail. A machinegun is emplaced here to take advantage of the fields of fire across the squad front down the road.

**Position 4** was dug behind a large boulder and the squad leader uses it as his squad command post because it is centrally located. The hole extends straight, slightly beyond the edges of the boulder to permit long-range observation and fires.

**Position 5** was emplaced behind a pile of rubble and extends straight to either side of the rubble.

**Position 6** was dug behind a tree and has a curved extension to enable the down-hill soldier to cover the entire slope to his left with a Dragon.

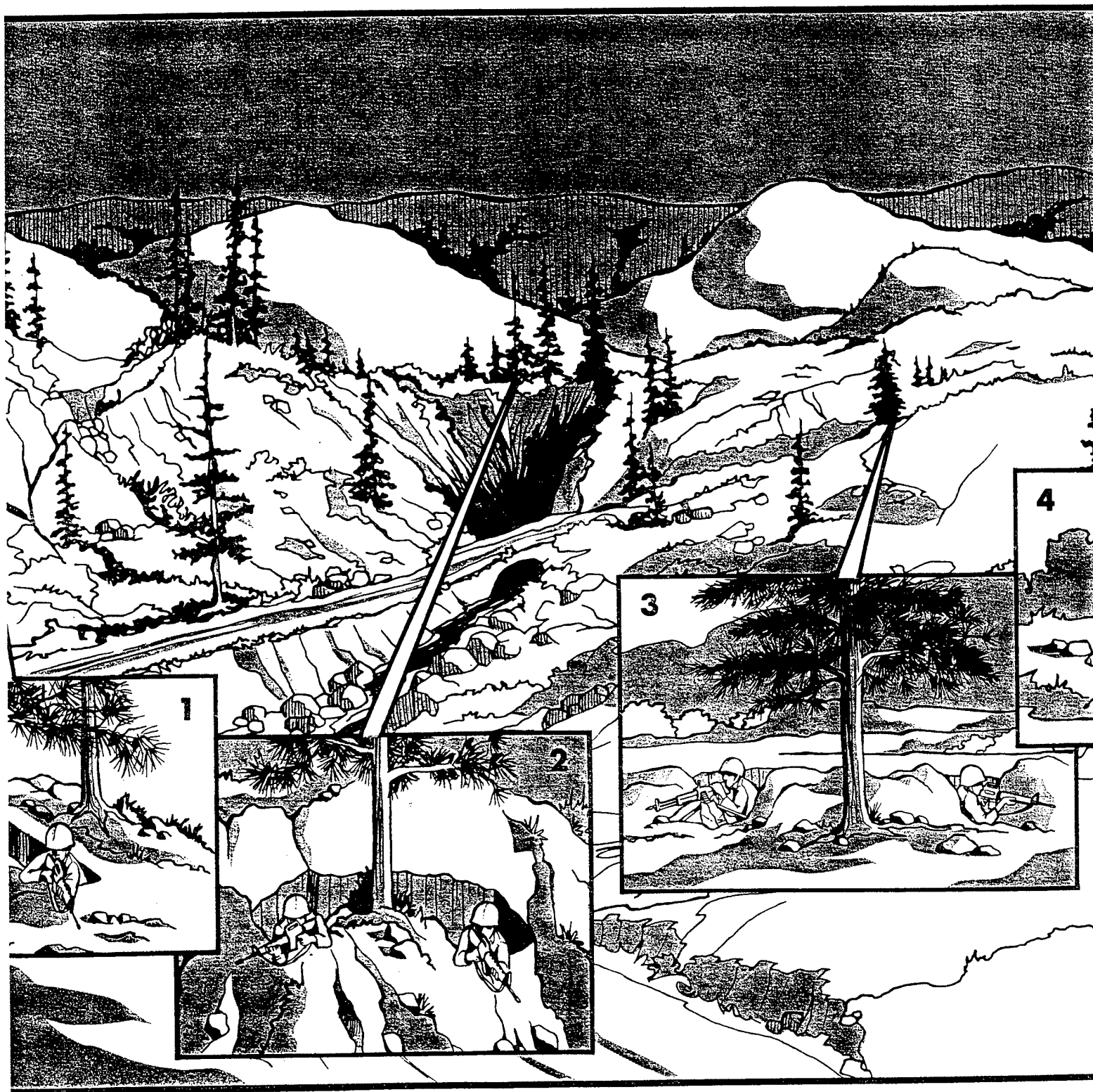
In all of these positions, fighting overhead cover would be constructed if time permitted. The cover would generally be no wider than the frontal protection so that it could not be seen from the enemy side.

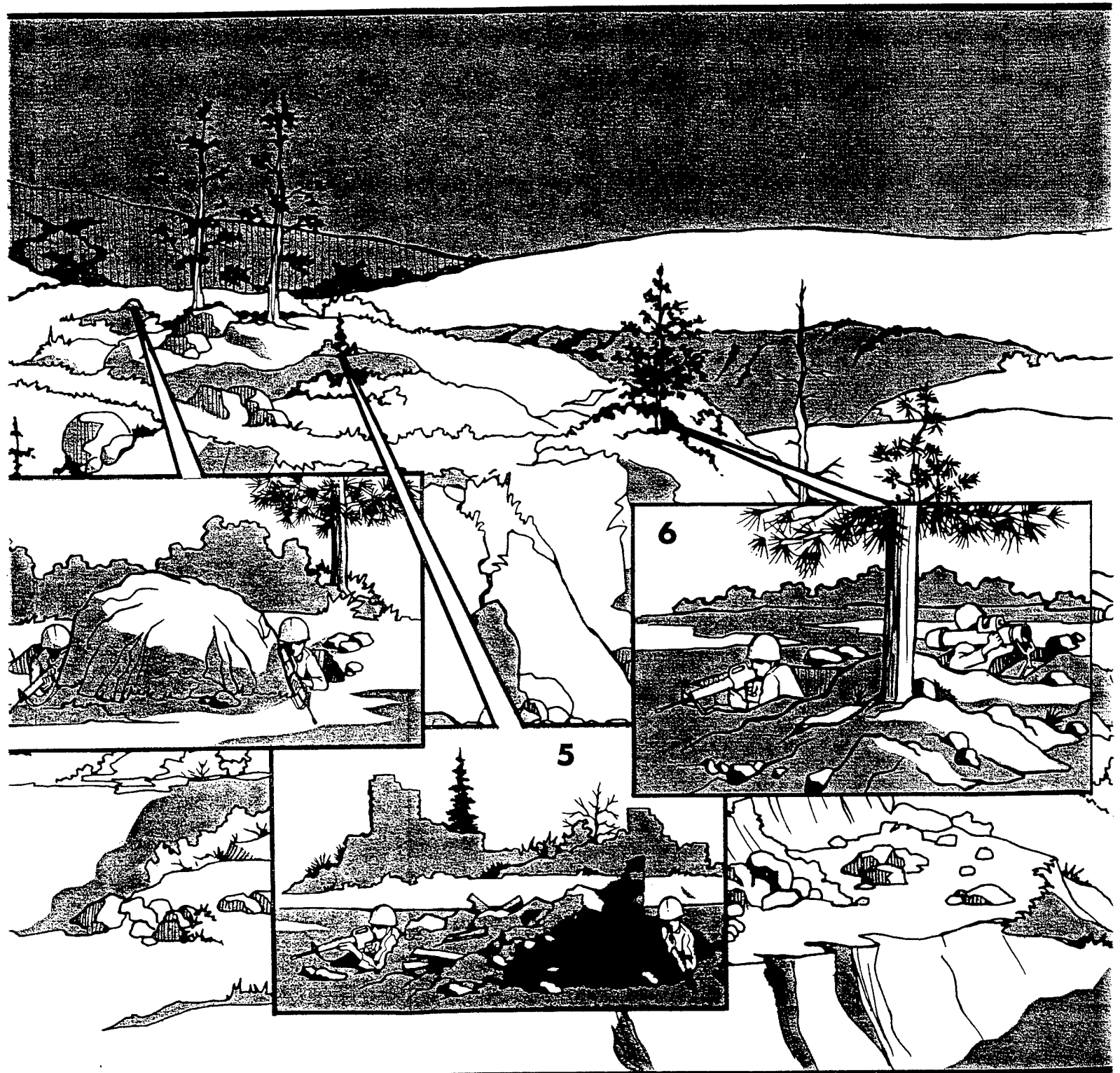


27 Gatefold

①







## IV TRAINING

The information and ideas presented thus far represent change. Some of it is subtle, some is not so subtle. If we hope to see this change adopted and endorsed by our Army, we need to train. *There are sound, compelling reasons for the recent changes in doctrine concerning fighting positions.*

### TRAIN TO SELECT AND DIG POSITIONS WITH GOOD COVER AND CONCEALMENT

While these may seem to be quite simple requirements, they are rarely met in training. More often than not we are content to let our troops sprawl behind a pile of brush and dead branches, *pretending* that they enjoy cover and concealment. In all probability, troops who, as a matter of course, spend time and effort selecting the location and improving their position without disturbing the natural concealment are the *exception*. We need to conduct training that makes our troops and leaders aware of the consequences of overlooking the importance of good fighting positions.

### TRAIN TO OVERCOME INACCURATE PERCEPTIONS

Troops who participated in the experiment were called upon to state their preferences for foxhole types. They ranked the holes as follows:

- 1st choice — split parapet
- 2nd choice — open foxhole
- 3rd choice — parapet foxhole

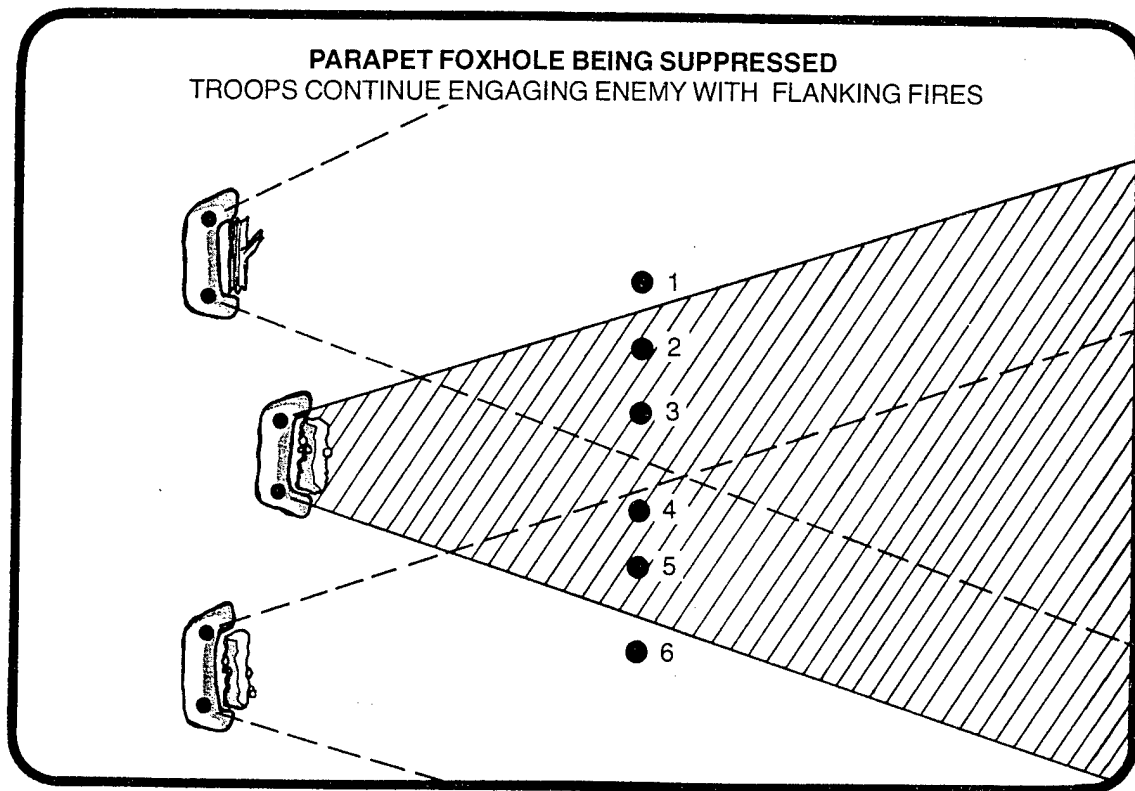
This ranking is consistent with what surveys in the field indicate. It is a reflection of what the troops think is safest for them, of what they *think* will increase their chances of survival. This is, of course, inconsistent by a considerable margin with data that indicate a *higher probability of being killed when defending from a standard open foxhole*. To convince the troops that their perception is erroneous, we need to give them realistic free-play exercises in which they learn the incontestible value of equipping their fighting positions with frontal protection.

The questionnaires also indicated that the troops who participated in the *attack* readily understood and appreciated the overwhelming advantage that either type of parapet gave the defender. *Attackers were much more aware of this than defenders*. SCOPES, REAL-TRAIN, and eventually MILES can all help to educate troops and leaders in the true benefits of the preferred fighting positions. These exercises will increase troops' confidence in their ability to defend against numerically superior forces. They will also increase the resolve and enthusiasm which troops apply to the preparation of their positions.

### TRAIN TROOPS TO FIGHT EFFECTIVELY FROM THE POSITION

It would seem normal to expect a soldier to more or less instinctively take cover behind his parapet when he is being accurately engaged and in danger of becoming a casualty. *In fact, troops tend to remain involved with the enemy advancing to their direct front about 50 percent of the time.* They neglect to pull back behind their parapet and engage to the flank when the enemy begins to reach assault fire range. SOPs, training, and aggressive leadership will be required to train our soldiers to fight from the positions in the most efficient way in the future. Proper fighting from the position means taking cover behind the parapet when enemy fires get close enough to be suppressive, but continuing to engage the enemy at any angle. This gives the fighter flanking shots at the approaching enemy and interlocking fires with adjacent positions. Training exercises that reinforce the wisdom of using this technique will also increase the troops' confidence in their ability to win even though outnumbered.

Consider the following schematic and discussion of how to use the frontal protection. Note the occupants in the center position.



The troops in this position are firing from the protected area behind their parapets. They cannot engage all of the enemy to their front, but they are not in danger of being shot by them either. They have flanking shots on enemy soldiers 1 and 6. The soldiers in the neighboring positions are putting flanking fires on numbers 2, 3, 4, 5. In other words, if you use the parapet properly, *the only enemy who has a clear shot at you is the one you can kill.* This logical explanation is the *first step* in training.

During the PARFOX VII experiment it was found that the concept of using the frontal protection to best advantage was not easy to teach, particularly not in the classroom. On the ground—in the training area—troops can be shown that if they use their positions properly, they can drastically reduce the number of enemy who can engage them at any point in time, even while they are receiving frontal fires. Again, *explain* the logic, *show them* on the ground, then *conduct realistic training* to reinforce the lesson.

Another lesson learned during the PARFOX VII experiment was that troops sometimes forget that their rifle muzzle can be spotted from great distances if it is allowed to extend above the parapet while the defender moves laterally, as he might do to change magazines. Realistic training exercises should remedy this.

## V CONCLUSION

Fighting positions must enable our soldiers to *fight and win* in a very lethal environment. The theoretical characteristics which answer this requirement are relatively simple. The position must *permit the soldier to engage the enemy* at the optimum range of his weapon, to kill and **SUPPRESS**. It must also *protect* him from both detection and fires. It must provide **COVER** and **CONCEALMENT**. It must be sited to permit and encourage a high level of **TEAMWORK** with buddies on the left and right.

Test results have very clearly shown that the *traditional open foxhole does not give our soldiers the protection* they need nearly as well as one equipped with frontal protection. We need to train leaders to site the holes properly and we need to train troops to dig properly.

Test results show that our *soldiers do not instinctively use the parapet to their best advantage* when they fight from the properly configured hole. We need to train to remedy this.

Early versions of the parapet foxhole were configured so that firers could not see or engage to the front except with extreme difficulty. This forced defenders to use mutual support and flanking fires. However, it hampered engagement at long range and it undermined troop confidence. For these reasons, we now teach a position which *meets all these requirements*.

### A FIGHTING POSITION MUST

- Protect against small arms fire
- Protect against indirect fire fragments
- Protect against aerial and ground observation
- Protect against tank and ATGM fires
- Provide for long-range observation and fires
- Provide for protected fighting and mutual support even as the enemy advances
- Provide confidence to fight and win

This bulletin has examined current principles concerning fighting positions. *Current principles* are necessarily generalizations. It is not intended that all fighting positions in all circumstances be precise replicas of those examined here. Leaders on the ground will decide what is best for the specific situation. When trade-offs are to be made, only leaders can decide whether it is smarter to maximize cover at the expense of concealment, or *vice-versa*. This bulletin examines principles. It is not trying to convince you to do unintelligent things. Observe the principles, but use your **common sense**. You owe it to your soldiers to train them to select and improve their fighting positions in the very best possible way. This will save lives and give us a greater probability of accomplishing future missions.

More precise information on the construction of fighting positions is in TC 7-1 and FMs 7-7, 7-8, and 7-10. Fighting positions are also discussed in videotape program number 2E-071, "*Infantry Fighting Positions*," Parts I, II, and III, and in program number 777-0470, "*The Evolution of Infantry Fighting Positions*."

## **APPENDIX A**

### **ORDERING TRADOC BULLETINS**

#### **PURPOSE**

A series of TRADOC bulletins is being published by HQ TRADOC to provide commanders timely technical information on weapons, tactics, and training techniques. The bulletins are not intended to supplant doctrinal publications, but to supplement material on "How to fight" with data derived from tests, recent intelligence, or other sources which probe "why?"

#### **APPLICABILITY**

TRADOC Bulletins are developed by Headquarters, TRADOC, using the most comprehensive and current military and civilian data available. Army Training and Evaluation Programs (ARTEP), Field Manuals (FM), and Training Circulars (TC) will continue to be the primary training references. TRADOC Bulletins will supplement them with an explanation of why we are training in a given manner. TRADOC Bulletins should enable commanders to better stimulate and motivate subordinates to understand why we train the way we do.

#### **INDEX OF SERIES**

TRADOC Bulletins are cataloged in DA Pamphlet 310-3. "Index of Doctrinal, Training and Organizational Publications." The series is numbered consecutively, and each TRADOC Bulletin is announced at the time of printing in the information bulletin distributed to all pinpoint account holders by the US Army AG Publications Center.

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## **APPENDIX B**

### **MANUALS AND OTHER PUBLICATIONS**

#### **THREAT DOCTRINE**

**DDI 1100-77-76**, The Soviet Motorized Rifle Company (Defense Intelligence Agency)  
**FM 30-40**, Handbook on Soviet Ground Forces  
**TC 30-102**, The Motorized Rifle Company  
**TC 30-3**, Soviet Equipment Recognition Guide  
**TC 30-4**, The Motorized Rifle Regiment

#### **US DOCTRINE**

**TC 7-1**, The Rifle Squad (Mechanized and Light Infantry)  
**FM 7-7**, The Mechanized Infantry Platoon/Squad  
**FM 71-1**, The Tank and Mechanized Infantry Company Team  
**FM 71-2**, The Tank and Mechanized Infantry Battalion Task Force

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**TB 1**, Range and Lethality of US and Soviet Antiarmor Weapons  
**TB 2**, Soviet ATGMs  
**TB 3**, Soviet RPG-7, Antitank Grenade Launcher  
**TB 4**, Soviet ZSU 23-4: Capabilities and Countermeasures  
**TB 5**, Training With LAW  
**TB 6**, Countersurveillance and Camouflage  
**TB 7**, The BMP: Capabilities and Limitations

#### **TRAINING FILMS**

Modern Battle (TF 21-4925)  
The BMP — Capabilities and Countermeasures (TF 21-4993)  
Infantry Fighting Positions, Part I (TVT-2E-071-INF 1-B)  
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\_\_\_\_\_ #7 (U) The BMP: Capabilities and Limitations (U)  
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